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ABSTRACT

Six question and answer exchanges between a teacher and a student were analyzed to illustrate teachers' intuitive practical knowledge of questioning skills. It is suggested that this knowledge of questioning techniques is systematic and organized and that the teacher draws intuitively from a systematic framework of questioning patterns. A theory of instruction as "joint proposition achievement" is proposed to account for the use of the question/answer format. The question is depicted as a threatening gesture while the response is depicted as one of compliance. The phrasing of teacher questions to include mutuality-enhancing devices such as hints is seen as an attempt to diminish the power of the question form, as a means of encouraging response, and consequently, the joint achievement of propositions. A flow chart of the question-answer exchange is presented with an accompanying discussion demonstrating the underlying conceptualization of instruction made evident by the questioning techniques of the teacher and the taxonomy of mutuality-enhancing devices which appear in the exchange. (JD)

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Tacit Knowledge of Questioning Strategies: An Aspect of Teachers' Practical Knowledge.

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Abstract

In order to begin to understand teachers' tacit knowledge of questioning strategies, the discourse of one sample of literature instruction has been analyzed according to a composite method of discourse analysis. Based on the analysis, a flow chart has been constructed outlining the questioning patterns used by the teacher whose instruction has been investigated. An interactional conceptualization of instruction thought to underly the tacit knowledge of questioning strategies has been formulated. In addition, various mutuality-enhancing devices have been described. It is suggested that these devices are used by the teacher to mitigate the power inherent in the teacher question form per se and that they constitute yet another aspect of teachers' tacit knowledge of questioning strategies. It is hoped that the flow chart, the conceptualization of instruction and the taxonomy of mutuality-enhancing devices will be of use to teachers who are interested in improving the quality of their own instruction.

Objectives and Theoretical Perspectives

The study of practical knowledge has been approached in two fields -- Curriculum Theory and the Sociologies of Ethnomethodology, Conversation Analysis and Constitutive Ethnography. In Curriculum Theory, Schwab, (1970, 1971, 1973) was the first to discuss the distinction between practical and theoretical reasoning, a distinction described originally in the writings of Aristotle. Following Schwab, a number of researchers such as Connelly (1972), Connelly & Clandinen (1983), Elbaz (1980), Reid (1978) and Walker (1975) have attempted to define and elaborate just what constitutes practical reasoning and teachers' practical knowledge.

Teachers' practical knowledge is the knowledge base for teachers' practical reasoning. It is seen as consisting of both intuitive and conscious decision-making abilities. Teachers exhibit a wide ranging practical knowledge base in their work including knowledge of students' learning styles, interests, needs, strengths and difficulties, a repertoire of instructional techniques and classroom management skills, theoretical knowledge of subject matter and of areas such as child development, learning and social theory, as well as knowledge of the social structure of the school and the community. All of these kinds of knowledge, as integrated by the individual teacher in terms of personal values and beliefs and as orierted to each practical situation in order to make sense of it constitute teachers' practical knowledge.

In 1981, Shavelson and Stern completed an extensive review of research on various aspects of what is referred to here as teachers' practical knowledge, examining research on pedagogical

thoughts, judgments, decisions and behaviours. They characterized, in a general way, the domain of such research under headings including antecedent conditions, teacher characteristics, teacher cognitive processes, consequences for teachers, consequences for students and teacher evaluation.

In addition, there exists a growing body of research and writing on teacher questioning in education, linguistics, educational psychology and other fields that is relevant to the field of teachers' practical knowledge. This work has been reviewed by Dillon (1982a, 1982b) and includes the work of many researchers and writers such as Bellack at al (1966), Gall (1970), Hunkins (1972), Hyman (1979), Mishler (1975a, 1975b, 1978), Rowe (1974a, 1974b), Sanders (1966), Sinclair and Clouthard (1975), Susskind (1979) and Winne (1979).

Given the fact that there is considerable interest in the phenomenon of teachers' questioning strategies, an important aspect of teachers' practical knowledge, it seems curious that researchers have demonstrated relatively little interest in analyzing transcripts of actual lessons in order to show how teachers' intuitive practical knowledge of instructional techniques is manifested in and through the connected discourse that constitutes instruction. Both the organizational framework underlying teachers' questioning strategies in stretches of connected discourse longer than one or two exchanges and the conceptualization of instruction on which such a framework might be based have not been examined in any great depth.

The second field in which practical knowledge has been

examined has been the Sociologies of Ethnomethodology, Conversation Analysis and Constitutive Ethnography and the more recent work on instruction being funded by the N.I.E. Garfinkel (1966), the major proponent of Ethnomethodology, has examined the thought processes people use to make sense of the world around them. Following Garfinkel and conversation analysts such as Sacks and his associates (e.g., Sacks, Schegloff and Jefferson, 1974), a number of sociologists have examined the discourse of the classroom including Cicourel et al (1974), Griffen and Humphrey (1978) and Mehan (1979). These researchers have tried to demonstrate how teachers and students make sense of the world of the classroom and to describe what kinds of knowledge and skills they possess to do so. (Their work has also been based on that of Bellack et al (1966) and Sinclair and Coulthard (1975)). More recent related work has been conducted by a number of researchers including Cook-Gumperz et al (1981), Green & Wallat (1981), Hymes (1981) and Morine-Dershimer & Tenenberg (1981). A great deal of headway has been made in such studies towards understanding the complex nature of teacher/student interactions. Much has been learned about the practical knowledge base of students and teachers. But, once again, the organizational framework underlying teachers' tacit knowledge of questioning strategies in connected discourse has not received a great deal of attention.

The purpose of this paper is fourfold - first, to analyze a sample of instruction, second, to initiate a model describing the organization underlying one teachers' intuitive or tacit practical knowledge of questioning strategies, third, to explicate a conceptualization of instruction underlying the model, and finally, to

initiate a taxonomy of mutuality-enhancing devices which, it is thought, the teacher uses to make questions less threatening and instruction more effective. The model, the conceptualization and the taxonomy constitute three aspects of this teachers' tacit practical knowledge of questioning strategies. It is hoped that, ultimately, these three constructs may prove useful to teachers interested in improving the quality of their own instruction. In short, the purpose of this paper is to marry the fields of discourse analysis and practical knowledge in order to construct frameworks for improving instruction.

Methods

The data being analyzed in this paper are the first six exchanges of one individualized reading interview. Although the whole interview has been examined in depth (Farrar, 1981), time constraints permit discussion of only a portion of the work. The reading interview under investigation is between a grade six teacher in an upper S.E.S. neighbourhood of a small Canadian city (a good teacher according to reputation) and one of his above-average students. They are discussing a novel they have both read -- Tales of a Fourth Grade Nothing by Judy Blume. The one-to-one context was chosen rather than the small group of whole class setting so that basic research in teacher/student interaction could be conducted without the interference of turn allocation procedures.

A composite method of analysis was developed to analyze the data based on Cicourel's (1978) suggestions. Three methods have been combined. The first is a speech act analysis based on

Searle's (1975) analysis of indirect speech acts, Grice's (1975) cooperative principle and Goody's (1978) depiction of the social and information functions of questions. The second method of analysis is a conversation analysis, based on the work of Sacks, Schegloff and Jefferson (1974) and others and derived from ethnomethodological sociology. The third and final method is what I have termed the interactional analysis. It is adapted from Labov and Fanshel's (1977) expansion analysis and from Brown and Gilman's (1960) notions of power and solidarity. In the interactional analysis, the rights and obligations of the participants are examined. The three methods of analysis are seen as mutually complementary: the speech act analysis deals with implicit meanings derivable from the explicit text; the conversation analysis deals with participant orientation; the interactional analysis deals with the underlying motivations which render the exchanges intelligible as social action. Through the use of this composite method of analysis, a stronger, more complete, relevant and useful account of the instruction can be explicated.

Although it can be argued that the generalizability of findings from detailed analyses of small samples of teacher questioning is limited, I would argue that for years philosophers and linguists have formulated theories without actually examining real life examples. Often these theories have been based on invented or remembered examples and it has then been the job of the psychologists to prove or disprove the correctness of the proposed theories through empirical study. Like many philosophers and linguists of the past, I am proposing a model of teachers'

tacit knowledge of instructional strategies and a conceptualization of instruction that is based on a combination of reflection and detailed analysis of limited materials. Future research will be necessary to determine the generalizability of these conceptions. Such an approach to understanding the discourse of instruction seems advisable, however, in light of the problems with past methodologies. Mehan (1979), for example, has pointed out that, in the past, insufficiently detailed analysis of large samples has led to the problem of inadequate generalizations. Input factors such as age, sex and socioeconomic status have been examined in relation to outputs such as achievement but the actual process of instruction, occurring between input and output, has been treated as a black box and left unexamined. Consequently, Mehan (1978), Labov and Fanshel (1977) and others have stated that in-depth examination of discourse is a critical and necessary prelude to the formation of useful generalizations concerning social interactions such as instruction.

I would suggest that the findings from the detailed examination being conducted here are generalizable to the extent that the sample of instruction being analyzed is representative of a class of interactions that could be labelled instruction. The sample of instruction being analyzed here appears to be representative for three reasons: first the interactions are between student and teacher; second, the question/answer format is being used and third, the interaction is occurring in school. It is admitted, however, that the model and the conceptualization being put forward here represent a first attempt to depict the

framework underlying teachers' questioning strategies. It is expected that both the model and the proposed conceptualization of instruction may be further refined and expanded in light of future analyses.

The following transcript conventions have been followed: The teacher utterances have been placed in the column on the left while student utterances are in the column on the right. A dot indicates a pause of half a second and a slash indicates a pause of less than half a second. Periods have been eliminated for purposes of clarity. Brackets indicate simultaneous utterances. Underlining either indicates stress or the title of the book being discussed.

The first six exchanges are as follows:

Insert Figure 1 about here

Analysis and Discussion

Analysis of the first six exchanges: In the first question, the teacher asks an indirect "Do you think ...?" question to which the student has the option of answering with a "yes" or a "no" to the "Do you think ...?" part or responding to the implicit "What was the special reason?" question. (By chain of reasoning, following Searle's (1975) analysis of indirect speech acts, one can work out an implied meaning.) The student responds "Yeh" to the explicit "Do you think ...?" question so we cannot know whether or not she thought there was an implied meaning. Conversation analysis allows us to identify the exchange as consisting of a question/answer adjacency pair because the question can be seen to have received a response. The interactional analysis

Figure 1

Six Exchanges Between a Teacher and a Student

EX.	TEACHER	STUDENT
1.	Ahm Let me see.....Ahm..Do you think that the/ Judy Blume had any special reason for naming the..the book Tales of a 4th Grade Nothing?↓..	
2.	other than the fact that the kid was in the 4th grade?↑....	Yeh↑....
3.	Why the word nothing?↓.....	----
		His brother↓.. Oh I don't know Laugh .....
4.	Was th... who was the main character in the story?↓	
		He was/ Peter
5.	Peter / And was he in the 4th Grade or was it his brother?↓	
	[His brother was a little guy	[He was in the 4th Grade ..
6.	Do you think that he felt/ that he himself was a/sort of/a nothing? or [or	
		[with his brother around he did ..He didn't feel wanted?↑ .....

allows us to interpret the teacher's roundabout phrasing as an effort to encourage response. Such an interpretation is based on certain preconceptions concerning the rights and obligations of student and teacher. Student and teacher are seen as mutually assisting one another in creating the lesson. (See Farrar, 1981.)

In the second exchange, the teacher rephrases the question of the first exchange by adding on a negative hint -- "other than the fact that the kid was in the fourth grade". This rephrasing has been labelled a negative hint because it eliminates a possible but unacceptable response and suggests that the preferred response must be something else. In order to see this question as a rephrasing rather than simply as a continuation of the first question, the interactional analysis is needed because seeing the question as a rephrasing is based on a conceptualization of the role of the teacher as one who helps the student achieve the desired response. Yet the interactional analysis would not be sufficient by itself. It needs the grounding provided by both the speech act analysis and the conversation analysis.

When there is still no response, the teacher again rephrases the question, including what has been termed a positive hint (because it clarifies the focus of the preferred response, to "Why the word nothing?". This question receives an aborted response.

Following this failed exchange, the teacher initiates an extended sequence or question chain geared to eventuate in the preferred response to questions #1 and #3. (Question #6 is another rephrasing of question #1 and #3.) The extended sequence consists of two simple factual recall questions which serve to make explicit

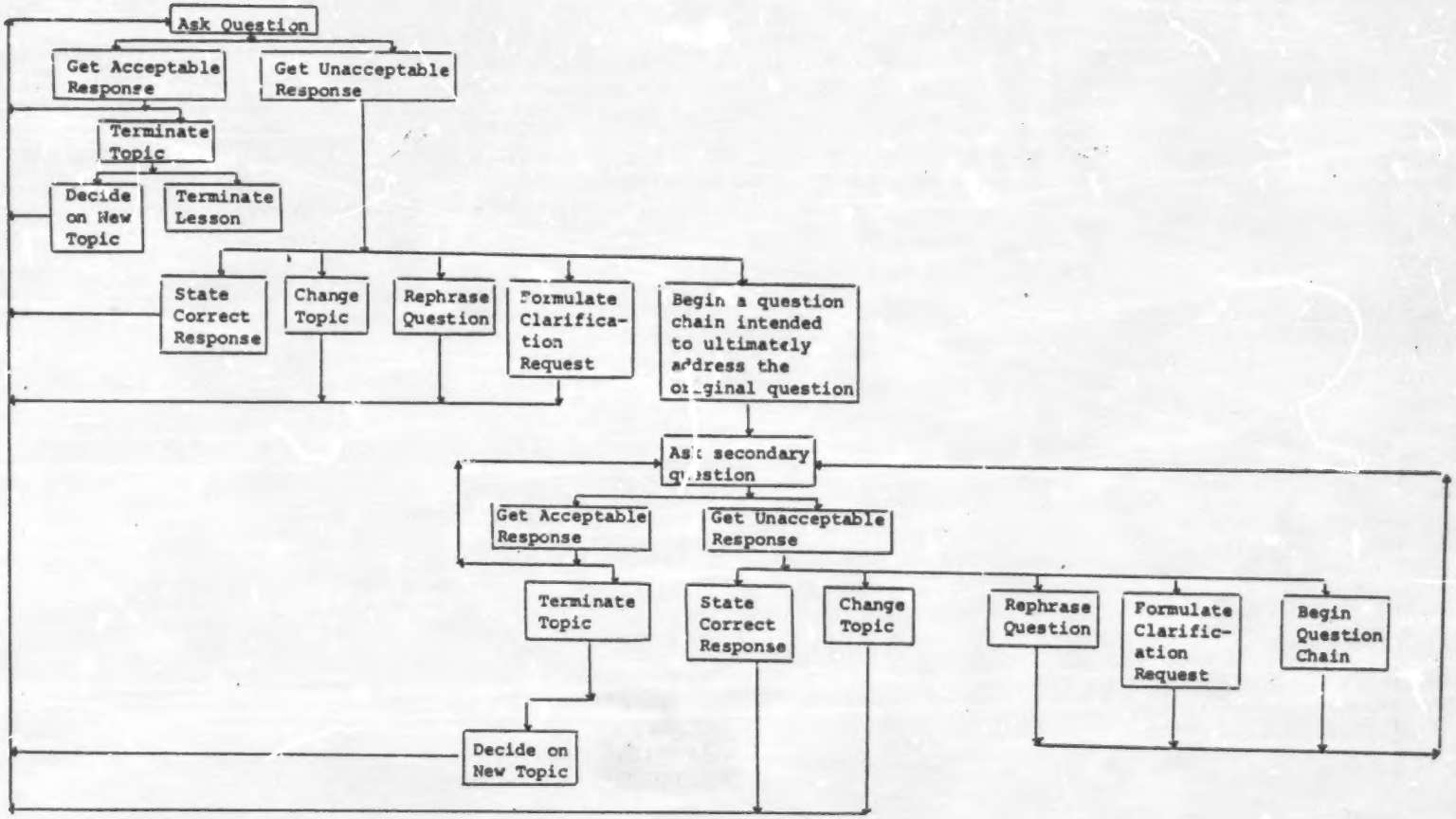
that background information necessary to the answering of the implicit question of the first exchange. Finally, following question #6, in which another hint is given, focusing attention on the fact that the word "nothing" is the focus of the desired response, the student produces an acceptable answer.

The extended chain is particularly interesting for demonstrating the usefulness of the composite method of analysis. Here, the Searlian analysis indicates that two direct questions have been asked, followed by an implicit question. The conversation analysis demonstrates that three question/answer adjacency pairs have occurred, that the student has oriented to the teacher's utterances as questions (because responses have been forthcoming). The interactional analysis is necessary, however, to demonstrate how the exchanges are intelligible as social action. Based on an understanding that the teacher has an obligation to phrase the question in a manner that assists the student, one can see that the purpose of asking two factual questions prior to the difficult sixth question is to help the student demonstrate understanding. Such questions encourage response because they are not difficult to answer. Simultaneously, they explicate the background knowledge required for the appropriate response to question six.

Regretfully, time limitations do not accommodate more complete analysis to demonstrate further the strengths of this composite approach (see Farrar, 1981, 1982), but analysis of these first six exchanges, brief as it is, has been provided to demonstrate the kinds of information discourse analysis can provide. The teacher's questioning patterns in these six exchanges as well as those in the exchanges comprising the rest of the interview have been used as the basis for construction of the following flow chart.

Figure 2

A Model Exploring Teachers' Intuitive Knowledge of Questioning Strategies



A model of one teacher's tacit knowledge of questioning strategies: According to this flow chart, the teacher begins the instruction by asking a question. If the response is acceptable, a subsequent question is asked and so on or the teacher may terminate the topic, decide on a new topic and ask a question, or, he may decide to terminate the lesson. If the response is unacceptable, certain alternative options remain open. The teacher may state the correct response, change the topic, rephrase the question or formulate a clarification request. If one of these alternatives is chosen, there is a return to the top of the flow chart with the teacher asking a question once again. A fifth alternative exists, however, that of initiating an extended sequence or question chain. If this choice is made, the teacher then proceeds to ask a secondary question. If an acceptable response is forthcoming, the teacher may terminate the topic, decide on a new topic and begin at the top of the flow chart again by asking a question, or he may ask another secondary question. If an unacceptable response is forthcoming, the teacher may state the correct response or change the topic causing a return to the top of the flow chart again or the teacher may rephrase the question, or formulate a clarification request, or begin another question chain. A choice of one of these three alternatives would mean returning partway up the flow chart to ask another secondary question.

Two things should be stressed regarding this flow chart. First, the choices depicted here are all and only those choices the teacher used throughout the course of the individualized reading interview under investigation. It is expected that other

alternatives might be explicated with further analyses of classroom discourse. What is represented here is a first step towards clarifying the alternatives available. Second, it should be stressed that these choices are not necessarily part of a conscious decision-making strategy employed by the teacher. Given the rapidity of the exchanges, it would seem more reasonable to suggest that the decision-making is tacit, the choice of strategy selected unconsciously. In fact, in conference with this teacher, he suggested that he didn't like to plan his questions too tightly beforehand because if he did so they often fell flat. He couldn't explain why. He preferred to think of suggested questions 2 or 3 days prior to teaching a lesson so that the ideas could just sit in his head for a while. I would suggest then that the flow chart demonstrates or is a manifestation of this teachers' tacit practical knowledge of questioning strategies. The flow chart describes a systematic, organized body of tacit knowledge that the teacher draws from in his instructional interactions.

The underlying conceptualization of instruction: On what kind of a conceptualization of instruction might this teachers' tacit knowledge of questioning strategies be based? To answer this question, I am proposing an interactional conceptualization of instruction. I believe this conceptualization of instruction constitutes the theory of questions Dillon (1972a) has been calling for and the theory of instruction called for by researchers of reading instruction. The interactional conceptualization of instruction is as follows:

Instruction is the joint achievement by student and teacher

(through the elicitation/response/feedback format) of those propositions which count as the course and for which both student and teacher are accountable.

This conceptualization was derived from a number of sources including Keenan, Shieffelin and Platt's (1978) work on parent/child interactions, Sinclair and Coulthard's (1975) analysis of classroom discourse and Heap's (1977) description of what counts as reading. Most particularly, the conceptualization was based on the work of Keenan, Shieffelin and Platt (ibid) who suggested that the question/answer format appears to provide a framework within which the mother may guide the child in expressing complex propositions. For example, through the sequence -- Mother: "What's in the bag?" Child: "A dog." -- the mother and child jointly express the proposition "The dog is in the bag." Mother and child collaborate in the linguistic expression of a proposition.

I would like to suggest, by way of analogy, that instruction too consists of such joint collaboration. The end result of such joint collaboration is the joint achievement of propositions which may be taken to constitute the course and for which both student and teacher then become accountable. Time limitations prohibit further exploration of this conceptualization. (For further discussion, see Farrar, 1981; 1982).

An important assumption underlying this interactional conceptualization of instruction is that student and teacher have an obligation to one another and ultimately to society to maintain the social order by ensuring that instruction occurs. They ensure that instruction occurs by cooperating with one another.

The student cooperates by attempting to answer the questions as best as possible. The teacher cooperates by rephrasing and adjusting his questions according to student difficulty. Where such mutual assistance breaks down, the lesson breaks down.

Towards a taxonomy of mutuality-enhancing devices: There are advantages to the use of the question/answer a format. First, the teacher receives some feedback as to whether or not the student is understanding. The lecture method does not allow such immediate feedback and the pupil reports runs the risk of being off topic. Second, the question is an instrument of power, a vehicle through which the teacher maintains authority over the student and the topic. Third, student attention and appropriate behaviour are more likely to result if the student is required on occasion to contribute verbally. Thus, through the question/answer format, an opportunity for student involvement is provided. At the same time, however, the teacher can retain control of which propositions will be allowed to stand as the course made manifest. Finally and most importantly, the question/answer format provides the vehicle for the joint proposition achievement that is instruction.

There is one salient problem with the question/answer format, however; the teacher question is threatening because it demands a response that will be evaluated. The question, thus, represents an instrument of power while the response represents an instrument of compliance. In keeping with the theory of instruction proposed above, it is in the teacher's interest to diminish the threatening aspects of the question by including what I have termed solidarity-enhancing or mutuality-enhancing devices (Farrar, 1981; 1983) such as the asking of implied questions or the inclusion

of positive and negative hints such as those discussed in the analysis of the six exchanges. Because these devices diminish the power component of the question, they encourage response and therefore the successful achievement of instruction. It remains now, to tabulate the various mutuality-enhancing devices as they occur in examples of instruction to be able to understand why one such device might be chosen over another in any given instance. Such a taxonomy has been initiated, and to date, sixteen such examples have been described.

A few examples of mutuality-enhancing devices are the implied question, the positive and negative hints and the extended chain discussed above. Others are the statement and the statement plus tag questions because they only ask for agreement rather than for a response formulated wholly from memory. For example, the statement "he liked that" requires only that the student agree. In a different way, hesitations are also seen as mutuality-enhancing because if the teacher hesitates, appearing unsure in some way, the student is encouraged to interrupt with a response. In another vein, some multiple questions such as those requesting a yes/no response are seen as mutuality-enhancing. (e.g., "Do you think he was kind to his dog, did he look after him well and feed him and give him baths and so on?"). If the student knows a response to one of the questions, he can assume the answer is the same for all. Asking about favourite parts or giving the student a set of responses or alternative forms to choose from is also mutuality-enhancing because it requires less work for the student to formulate a response. It is curious that many of these

forms have, in the past, been considered poor pedagody. Traditionally, words such as clear, concise, and definite have been considered appropriate descriptors of ideal question form. Such a conception of ideal question form is, however, based on the false assumption that spoken language should emulate written language (Farrar, 1983).

Implications for Education

The flow chart depicting the choices open to teachers in their instructional practice, the conceptualization of instruction on which it is based and the taxonomy of mutuality-enhancing devices, should prove useful for improving instruction. If teachers were to tape their own instruction and examine the questions that they felt were unsatisfactory in light of the flow chart and the taxonomy, they should begin to develop a better understanding of the social functions of questions. Such an understanding is a necessary first step towards improving instruction. By first examining the questions that didn't work in their own teaching and then examining some of the available alternatives, they should be able to choose or generate alternatives that might be used to advantage on future occasions.

Although teachers' knowledge of questioning techniques is intuitive, it is possible that through making such knowledge explicit and conscious, teachers (and possibly teacher evaluators) might be able, consciously, to improve the quality of instruction.

It is often said that teachers are born, not made. What is generally meant by this expression, among other things, is that good teachers have a tacit knowledge of good questioning

strategies. It is my contention, however, that teachers can be made as well as born if they are willing to try and improve the quality of their instruction by studying aspects of teaching like the art of questioning according to frameworks such as those discussed in this paper, frameworks that explicate the systematic and organized nature of aspects of teachers' practical knowledge.

Summary

A study has been conducted, examining teachers' intuitive practical knowledge of questioning skills. I have suggested that teachers' intuitive knowledge of questioning techniques is systematic and organized, that the teacher draws intuitively from a systematic framework of questioning patterns. A theory of instruction as joint proposition achievement has been proposed to account for the use of the question/answer format in schools. In addition, the question has been depicted as a threatening gesture while the response has been depicted as one of compliance. The phrasing of teacher questions to include mutuality-enhancing devices such as hints has been seen as an attempt to diminish the power of the question form, as a means of encouraging response and consequently, the joint achievement of propositions. It is hoped that the flow chart, the underlying conceptualization of instruction on which it is based and the taxonomy of mutuality-enhancing devices described here have provided some insight into the nature of instruction. It is also hoped that these constructs will, ultimately, prove useful to teachers who are interested in improving the quality of their own instruction.

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